

Using the Discriminant to Find the Number of Solutions of Quadratic Equations

Use the discriminant to determine how many solutions a quadratic equation will have.

If the discriminant is **positive**, the equation has **2** solutions.

If the discriminant is **zero**, the equation has **1** solution.

If the discriminant is **negative**, the equation has **no real solutions**.

To find the discriminant, make sure the equation is in the form $ax^2 + bx + c = 0$.

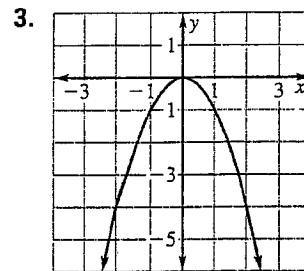
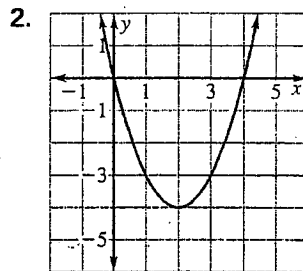
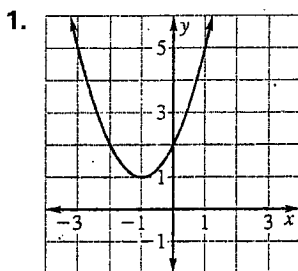
Calculate the value of $b^2 - 4ac$.

Match the discriminant with the graph.

A. $b^2 - 4ac = 3$

B. $b^2 - 4ac = 0$

C. $b^2 - 4ac = -2$



Decide how many solutions the equation has.

1. $x^2 + 12x + 32 = 0$

2. $3x^2 + 5x - 2 = 0$

3. $5x^2 - 8x + 9 = 0$

4. $2x^2 - 12x + 18 = 0$

5. $-2x^2 - 5x - 6 = 0$

6. $x^2 + 2x + \frac{1}{3} = 0$

7. $-\frac{7}{2}x^2 - 4x - 5 = 0$

8. $\frac{3}{2}x^2 - 3x + \frac{3}{2} = 0$

9. $-5x^2 - x + 1 = 0$

10. $-2x^2 + 3x - 1 = 0$

11. $18x^2 - 11x + 2 = 0$

12. $-3x^2 + 12x - 12 = 0$